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(71) Applicant

Bally Manufacturing

Corporation

(USA—Illinois),

2640 West Belmont

Avenue, Chicago, Illinois

60618, United States of

America

(72) Inventor

David Judd Nutting

(74) Agent and/or Address for

Service

Bout, Wade and Tennant,

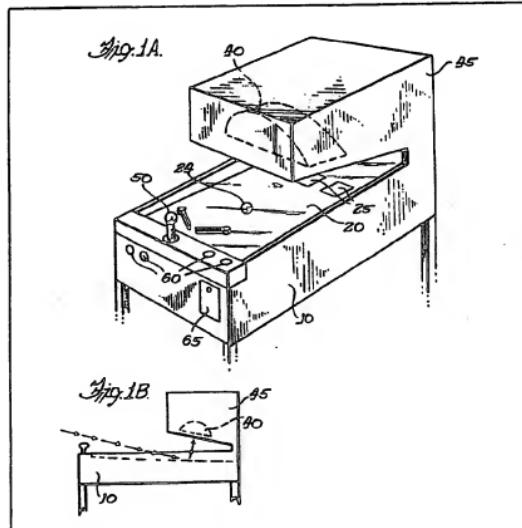
27 Furnival Street,

London EC4A 1PG

(54) Combination video and surface projectile apparatus

(57) The apparatus has a user activated input 50, 60, and is operable either as a video game or as surface projectile game. A first system selectively operates the apparatus as a video game, and a second system selectively operates the game system as a surface projectile game. Control

means provides stimuli to these systems in response to user activated input. Means are provided for communicating between the first and second systems and the control means. The video display 40 is reflected off a partially reflective-transmissive cover and, when activated, obscures observation of a ball 24 and a surface 20.



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Fig. 1A.

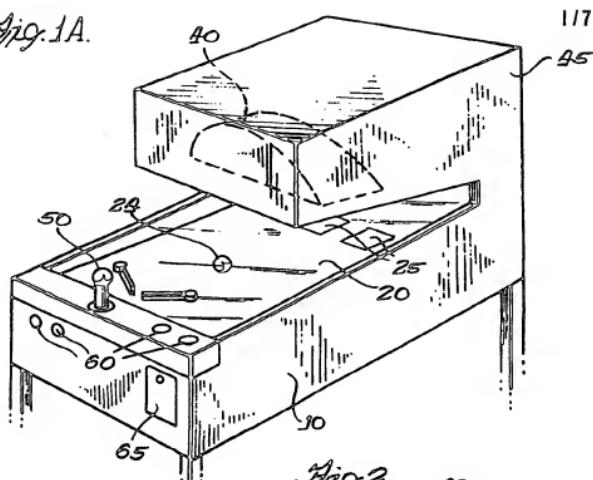


Fig. 1B.

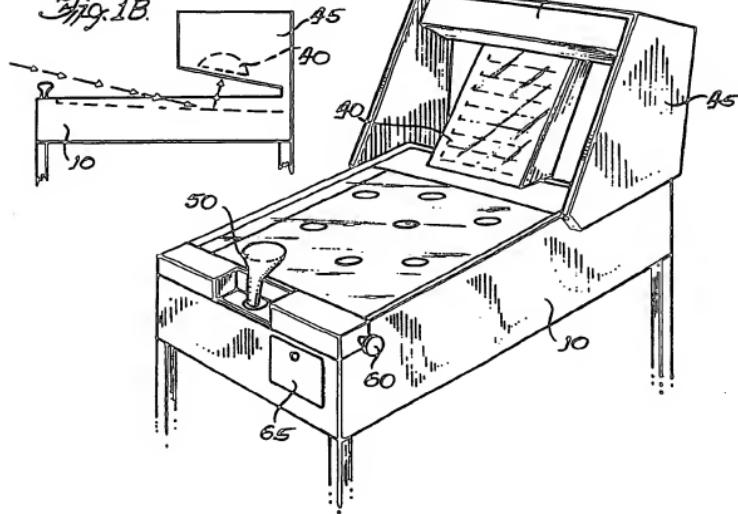
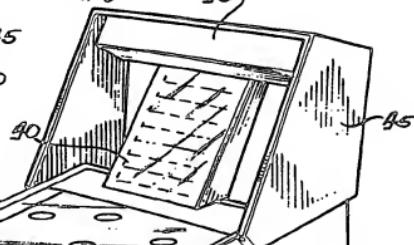


Fig. 2.



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Fig. 3A.

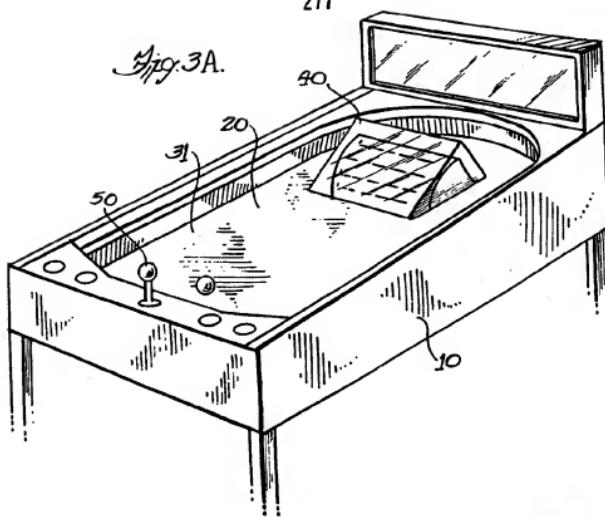
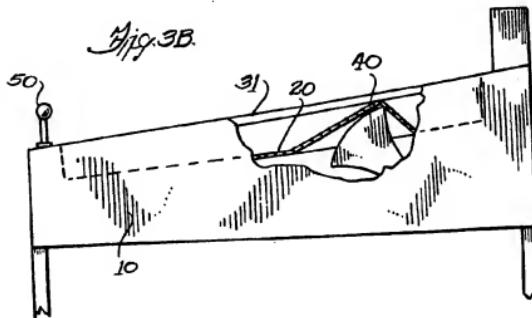
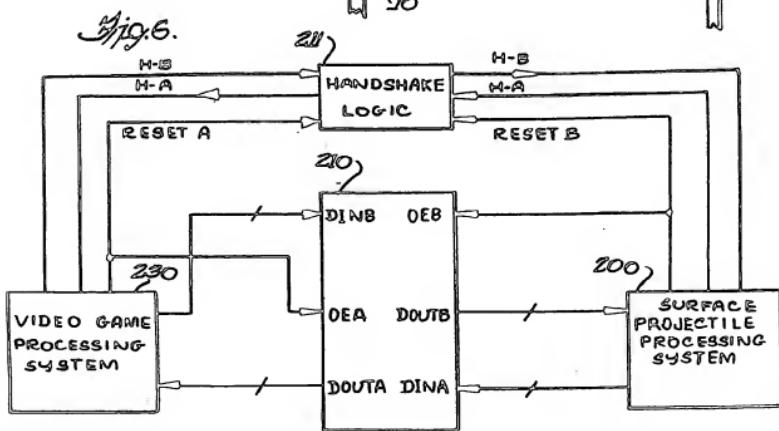
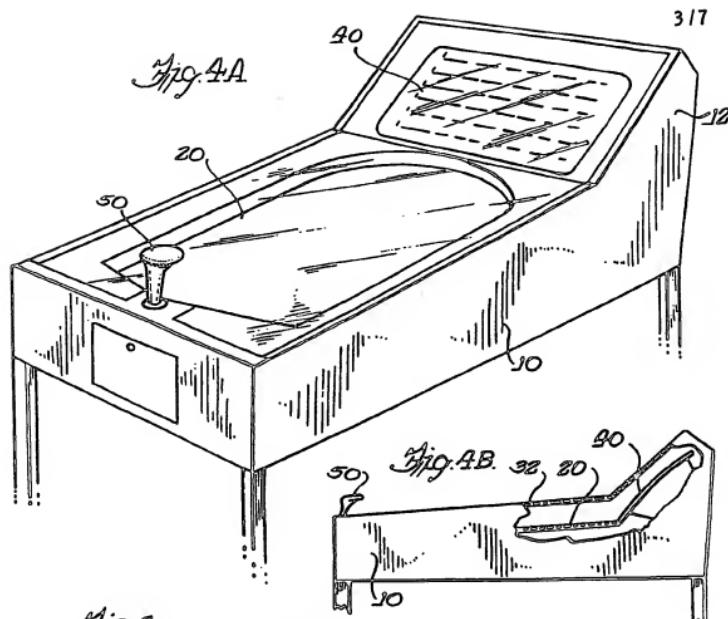


Fig. 3B.





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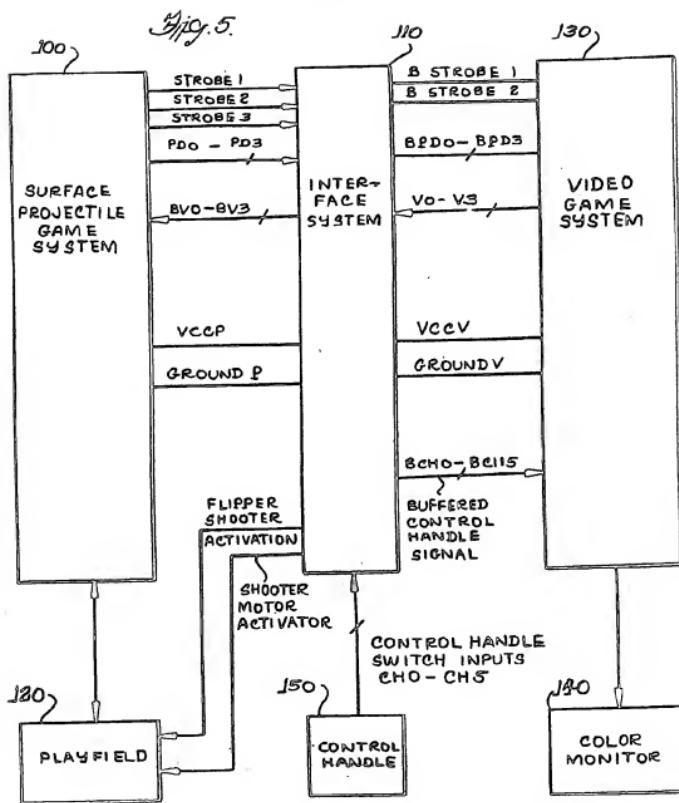


TABLE I
SIGNALING CONVENTIONS

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SAMPLE MESSAGE LIST FOR SURFACE PROJECTILE
TO VIDEO GAME SYSTEM COMMUNICATIONS

<u>MESSAGE</u>	<u>MEANING</u>
X01	INCREMENT SCORE by ... AMOUNT 1
X02	... AMOUNT 2
X03	... AMOUNT 3
X04	... AMOUNT 4
X05	PLAYER 1 UP
X06	PLAYER 2 UP
X07	PLAYER 3 UP
X08	PLAYER 4 UP
X09	PLAYER 5 UP
X0A	PLAYER 6 UP
X11	CREATE DISPLAY/AUDIO SEQUENCE ... #1
X12	... #2
X13	... #3
X1F	... #15
X21	SCORING PLATEAU #1 ACHIEVED
ETC.	128 MESSAGES POSSIBLE

SAMPLE MESSAGE LIST
VIDEO TO SURFACE PROJECTILE GAME SYSTEM
COMMUNICATIONS

<u>MESSAGE</u>	<u>MEANING</u>
X0	INCREMENT SCORING PLATEAU COUNTER
X1	RETURN CONTROL TO PINBALL
ETC.	8 MESSAGES POSSIBLE

<u>OUTPUT PORT</u>	<u>BIT</u>	<u>TABLE 8</u>
80	Ø	COIN COUNTER
84	Ø-3	5 FOR KNOCKER 6 FOR OUTHOLE KICKER 7 FOR RIGHT BUMPER 8 FOR LEFT BUMPER 9 FOR BOTTOM BUMPER 10 FOR LEFT SLING SHOT 11 FOR RIGHT SLING SHOT
	4	"1" TO ACTIVATE THE SOLENOID SPECIFIED BY BITS Ø-3
88	Ø	"1" TO DISABLE FLIPPERS "0" TO ENABLE FLIPPERS RESET TO "1"
8c	Ø	"1" TO COIN LOCKOUT RESET TO "1"
90	Ø	#1 MERCURY 1 #2 VENUS 2 #3 EARTH 3 #4 MARS
91	Ø	#5 JUPITER 1 #6 SATURN 2 #7 NEPTUNE 3 #8 URANUS
92	Ø	#9 PLUTO 1 N/V 2 RIGHT OUTLANE 50K 3 LEFT OUTLANE 50K
93	Ø	#1 ROLLOVER 1 #4 ROLLOVER 2 #6 ROLLOVER 3 #9 ROLLOVER
94	Ø	#7 ROLLOVER 1 #3 ROLLOVER 2 #2 TARGET 3 #8 TARGET
95	Ø	#5 TARGET 1 CENTER TARGET E.B. ARROW 2 RIGHT SPINNER 3 LEFT SPINNER
96	Ø	BONUS SPECIAL 1 18K JUMBO 2 36K SUPER BONUS 3 LANES SCORE 5K

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OUTPUT PORT BIT

97	0	"A" TARGET	RAM BYTE 0	
	1	"B" TARGET		1
	2	"C" ARROW BOTTOM		2
	3	"D" ARROW BOTTOM		3
				4
98	0	"D" ARROW TOP		5
	1	"C" ARROW TOP		6 TILT
	2	NU		7 OUTHOLE
	3	A, B, C, D SPECIAL		
			RAM BYTE 2	
99	0	NU	0	RIGHT SPINNER
	1	BOTTOM BUMPER	1	LEFT SPINNER
	2	NU	2	
	3	3X BONUS	3	TOP ROLLOVER BUTTON
			4	30 POINT REBOUND
9A	0	NU	5	#5 TARGET
	1	NU	6	"B" TARGET
	2	S.P. SHOOTS AGAIN	7	"A" TARGET
	3	CREDIT INDICATOR		
			RAM BYTE 3	
98	0	NU	0	#8 TARGET
	1	NU	1	#6 ROLLOVER
	2.	NU	2	#4 ROLLOVER
	3	NU	3	#2 TARGET
			4	#9 ROLLOVER
9C	0	NU	5	#7 ROLLOVER
	1	HIGH SCORE TO DATE	6	#3 ROLLOVER
	2	NU	7	#1 ROLLOVER
	3	NU		
			RAM BYTE 4	
9D	0	#1 PLAYER	0	
	1	#2 PLAYER	1	RIGHT OUTLANE
	2	NU	2	LEFT OUTLANE
	3	NU	3	RIGHT SLINGSHOT
			4	LEFT SLINGSHOT
9E	0	1ST PLAYER UP	5	BOTTOM BUMPER
	1	2ND PLAYER UP	6	LEFT BUMPER
	2	NU	7	RIGHT BUMPER
	3	NU		
B0		8279 DATA PORT		
B1		8279 COMMAND PORT		

INPUT PORT BIT

B0	WATCH DOG
B0	8279 DATA PORT
B1	8279 STATUS PORT

SPECIFICATION**Combination video-surface projectile game**

This invention relates to amusement games and more particularly to video and surface projectile games.

Heretofore, amusement games have been limited to either a video display or a physical playfield. The conceptual and physical embodiments of games have kept the surface projectile game and video game two separate entities, each requiring its own play and display areas.

In accordance with one aspect of the present invention, a combination video-surface projectile game system is provided wherein game play is switched between a video game and a surface-projectile game under control of the game system. In one embodiment, a single user control provides a set of inputs used by the system in both the video game and surface projectile game modes.

In another embodiment, a partially reflective-partially transmissive cover lies spaced above the playfield, and a video display lies spaced above and partially facing the cover. The system selectively activates the video display in the video game mode so as to block out the playfield visuals. The system selectively deactivates the video display in the surface-projectile game mode such that the playfield is visible through the cover.

In another embodiment, the system selectively activates the video display to partially illuminate, thereby only partially blocking the playfield visuals, so as to permit a video and surface projectile combination game mode.

A better understanding of the invention may be had from examples contained in the following detailed description taken in conjunction with the accompanying drawings, in which:

Figs. 1A—1B are perspective and side views illustrating a first embodiment illustrative of the present invention;

Fig. 2, 3A—3B and 4A—4B are perspective views of alternate physical embodiments illustrative of the present invention;

Fig. 5 is a game system block diagram in accordance with one embodiment of the present invention illustrating the interconnection of separate video game and surface projectile game computers;

Fig. 6 is a detailed electrical schematic illustrating an alternate embodiment of a game system computer interconnection technique;

Table 1 is a listing of signalling conventions for the game system computer interconnection technique utilized in accordance with the system of Fig. 5;

Table 2 is a map listing output port, input port, and RAM assignment and format; and

Referring to Fig. 1A, a combination game illustrative of one embodiment of the present invention is shown. The game is comprised of a cabinet 10 housing appropriate electronic, mechanical, and electronic components for performing all necessary game and control

functions. Spaced beneath the top surface of the cabinet 10 is a downwardly sloping playfield 20 upon which a surface projectile 24 caroms. In the illustrated embodiment the playfield has targets 25 and flippers 28 mounted upon the surface thereof. A cover is mounted atop the cabinet spaced above the playfield. In the illustrated embodiment the cover is a partially light reflective-partially light transmissive material such as a specially coated nonglare glass. A selectively illuminatable video display 40 is spaced above the cover aligned to reflect the illuminated display off the surface of the cover 30. The video display 40, such as a color cathode ray tube is shown housed in a back panel 45 mounted to the cabinet 10. The relative positioning of the video display in the game can be more clearly seen by reference to Fig. 1B.

Referring again to Fig. 1A, graphical illustrations and/or lights and speakers may be mounted within the cabinet 10 or the back panel 45. A user control 50 provides user control signals responsive to user activation of the user control. In the illustrated embodiment, the user control is a pistol grip joy stick with a trigger switch. However, other types of user controls can be utilized in accordance with the teachings of the present invention. Other push buttons and switches designated 60 can also be provided mounted to the exterior of the cabinet for user activation, such as for shooting the initial ball, choosing number of players, special function buttons, etc. The electronics housed within the cabinet 10 includes first means for selectively operating the system as a surface projectile game responsive to a first set of operational conditions, and second means for operating the system as a video game responsive to a second set of operational conditions. The second means is further comprised of means for selectively illuminating the video display so as to reflect off the cover 30. The sets of operational conditions are determined responsive to the overall game play (such as score, sequence and number of targets hit, etc.) and the user control. In one embodiment, means are provided for capturing the surface projectile responsive to the operation of the system as a surface projectile game prior to the system switching from the surface projectile game to the video game. In the illustrated embodiment, the video display is oriented such that its reflection visually blocks user perception of the projectile and playfield when the system is in the video game mode. In an alternate embodiment, the system can be operated as both video and surface projectile games, concurrently, responsive to a third set of operational conditions. In the illustrated embodiment, the user control 50 provides a single control mechanism for providing a common set of signals utilized in both the surface projectile game mode and video game mode of the system. Control of the flippers 28 or other surface projectile propelling means can be provided by user control 50 or in alternate embodiments can be provided by separate buttons or switches. In a

preferred embodiment, means are provided for communicating between the first means and the second means within the cabinet 10.

Referring to Figs. 2, 3A-3B, 4A-4B there are shown alternate embodiments of a combination video and surface projectile game system which differ from the system of Fig. 1 in that the display is not oriented for reflection off the top surface of the cover of the combination system game.

10 Referring to Fig. 2, a perspective view of an alternate embodiment illustrating the present invention is shown wherein the video display 40 is mounted in the back panel 45 for direct viewing by the user positioned at the control handle 50. In
15 this embodiment, the cover 30 need no longer have a reflective surface, as the video display and playfield are separately viewable. Nevertheless, similar electronics can be used in the game systems illustrated in Figs. 1-4B, despite
20 differences in the physical appearance of the system, excluding apparatus dedicated to the visual overlay of the system of Fig. 1.

Referring to Figs. 3A-B, perspective and side views of an alternate embodiment of the present invention as illustrated in Fig. 2 is shown, wherein the video display 40 is mounted within a recess in the playfield 20 in the cabinet 10. No back panel or housing the video display is necessary. In the illustrated embodiment, the video display 40 is mounted at a viewing angle such that a user at the rear control can visually perceive both the video display and the playfield from the position of the rear control. A cover 31 is spaced above the playfield 20 atop the cabinet 10, in the manner as described with reference to Figs. 1-2. As in the case of the system of Fig. 2, the cover 31 need only be a light transmissive cover, and preferably a one piece elongate cover. The reflective characteristics are not needed as the visual display is perceived through the cover in the same manner as the playfield. Electronics similar to those employed with reference to Fig. 2 can be utilized with the system of Figs. 3-4.

45 Referring to Figs. 4A—B, front perspective and side views of yet another embodiment of the present invention are illustrated. The system of Figs. 4A—B are similar to that illustrated in Fig. 2, in that the video display is mounted separate from the playfield, positioned for visual perception from 50 the user control 50, but differs in that the video display 40, such as a color cathode ray tube, is mounted adjacent to the upper edge of the playfield 20, with the display axis of the display 40 forming an obtuse angle relative to the playfield 55 20. A cover 32 spaced above the playfield need only be light transmissive, as in Figs. 2—3. The cabinet 10 is further characterized as having an upwardly extending back panel section 12 for housing the video display 40.

60 Referring to Fig. 5, a block diagram of a combination game system illustrating one aspect of the present invention is shown. The block diagram of Fig. 5 illustrates the interconnection of the separate video game system 130 to the surface projectile game system 100 via an

65

surface projectile game system 700 via an

interface system 110. The control handle 150, such as that illustrated in Figs. 1—4B, is coupled to the interface system 110. The interface system 110 provides buffered control handle signals

710 provides buffered control of handle 150.
BCHO to BCH5 to the video game system 130,
and provides flipper shooter activation and
shooter motor activation signals to the playfield
120, responsive to user activation of the control
handle 150. The surface projectile game system,
75 such as a pinball game system, is also coupled to
the playfield 120. Bidirectional data
communication is provided between each of the
game systems 100 and 130 and the interface
system 110, as designated in Fig. 5 by PDO—PD3
80 and BVO—BV3 for the surface projectile game
communications, and BPDO—BD3 and VO—V3
for communications between the video game
system and the interface system 110. In the block
diagram of Fig. 5, each of the systems 100 and
85 130 includes necessary game electronics,
separate power supplies, sound systems, audio
amplifiers, and speakers. In alternate
embodiments, a common set of power supply,
sound system, audio amplifier, and speaker can
90 be provided for cost effectiveness purposes. The
power supply regulated outputs and ground
outputs of the systems 100 and 130 are each
coupled to the interface system 110. Preferably,
95 interface between the interface system 110 and
each of the systems 100 and 130 is accomplished
via optical isolator devices so that ground loops
and other system interconnection problems are
avoided. Additionally, the electronic system design
100 illustrated in Fig. 5 is for two sets of power supply,
etc., so as to make maximum use of existing
production subsystems. In this way the interface
of these sub-systems is minimized as is the
105 interface coupling. This allows the two parts of the
game, video and surface projectile, to be
developed independently by two engineering
groups, each using familiar software and
hardware. Although each subsystem can use its
110 own set of power supply, sound system, audio
amplifier and speakers, alternate system designs
can utilize a common set of power supply, sound
system, audio amplifier and speakers for both
subsystems.

Referring now to Fig. 5 and Table 1 together, the system level description of the interface for the illustrated embodiment of Fig. 5 will now be discussed. The logical interconnection of the two systems 100 and 130 is strictly via messages as illustrated in Fig. 5 and Table 1. In this illustrated example, 128 messages can be transmitted from the surface projectile system 100 to the video game system 130, and 8 messages can be transmitted from the video game system 130 to the surface projectile game system 100, both sets of transmittal occurring via the Interface system 110. Other numbers of messages can be chosen for alternate embodiments. Although the reaction to the messages need not be specified until the game design is complete, the physical message channel and signaling conventions for the illustrated embodiment are specified in Table 1.

which also provides a partial exemplary list of actual messages. In the illustrated system of Fig. 5, two four-bit output ports are effectively provided from the surface projectile game system 100 to the interface system 110 and therefrom to the video game system 130. The signals designated strobe 1, strobe 2, and PDO—PD3 provide the two channels of four-bit outputs. One of these signal lines acts as a toggle bit which changes whenever a new message is sent. A minimum latency time between messages should be specified, such as a minimum of 24 milliseconds. In the illustrated embodiment of Fig. 5, the video game system 130 takes responsibility for physically latching the messages from the surface projectile game system 100, and samples the message port of the interface system as represented by output lines BPDO—BD3, in a cyclical manner having a specified period. For example, in the illustrated embodiment, the sampling period is at least once every 16 milliseconds.

Communications from the video game system 130 to the surface projectile game 100 is accomplished via a four-bit latched output port designated V0—V3. The video game system 130 is, in the illustrated embodiment, responsible for maintaining the data at a constant level for a minimum period of time, such as 32 milliseconds. One signal line, e.g., V3, is a toggle bit which changes whenever a new message is sent. While specific protocols and time periods have been discussed with reference to signaling conventions between the video game system 130 and the surface projectile system 100, other communications protocols and interface systems can be utilized consistent with the teachings of the present invention.

Referring to Table 1, sample message lists of signaling conventions for surface projectile to video game system communications and for video game to surface projectile game system communications are illustrated. Thus, the system of Fig. 5 utilizing the signaling conventions is shown in Table 1 provides means for communicating between the video game system 130 and the surface projectile game system 100 to provide means for implementing a combined video-surface projectile game.

In one embodiment of the system of Fig. 5, each of the systems 100 and 130 contain respective processor based systems. For example, the surface projectile game system 100 can contain a 6800 microprocessor, memory, I/O circuitry, and be programmed with appropriate software to implement the surface projectile game utility functions. The system 100 may also include other electronic and electrical devices therein. The video game system 130 can contain a Z80 microprocessor based system having memory and I/O circuitry and including software for implementing the video game utility functions. The system 130 may also include other electrical, mechanical, and electronic devices. Alternatively, a single microprocessor based system can be

utilized to implement both the video and surface projectile game functions. Alternatively, in place of a microprocessor based system, means can be provided for sequencing through at least one predefined logical sequence responsive to control inputs received from the control handle 150.

Referring to Table 2, a map is shown listing the output port, input port, and RAM assignments and formatting for the system illustrated in Fig. 5. As seen from Table 2, output port assignments are made to allow communications between the game systems 100 and 130 and the coin counter, targets, kickers, bumpers, flippers, solenoids, spinners, lights, displays, and communications buffers. These assignments of input and output ports are noncritical, and other assignments and configurations can be utilized consistent with the teachings of the present invention.

Referring to Fig. 6, a detailed electrical schematic illustrates an alternative system to that illustrated in Fig. 5. The system of Fig. 6 illustrates an alternative interface and interconnect structure for the combination game system of the present invention. A surface projectile game system 200, similar to the surface projectile game 100 of Fig. 5, and a video game processing system 230, similar to the video game system 130 of Fig. 5, control the respective game play modes of the combinational game system as discussed above herein. Interface to the user control, the playfield, and the video display can be implemented in the manner as described above herein, or may be interfaced directly to either or both of the surface projectile game system 200 and video game processing system 230. An interface system comprised of bidirectional port means 210 and handshake interface logic 211 provide the interface system function (such as interface system 110 of Fig. 5) for providing bidirectional communications between the two systems 200 and 230. The bidirectional communications port 210 can be comprised of latches having tristate outputs, such as 74LS374's or may be constructed of other suitable electronic circuitry. In one embodiment, the bidirectional port is eight bits in each direction. Alternatively, N bits of information can be communicated bidirectionally to accommodate any communications protocol or hardware architecture constraints. As illustrated in Fig. 6, the communications port 210 also contains data inputs for receiving data from each of the systems 200 and 230. Further, output enabling means are provided, designated OEA for enabling data flow from the surface projectile game system 200, to the video game processing system 230 via the port 210, and OEB for enabling output of data communicated from the video game processing system 230 to the surface projectile game processing system 200 via the port 210. The output enabling signals OEA and OEB, perform a dual function. First, as described above, these signals act to enable transmission of data via the communication port 210. Secondly, these same signals, OEA and OEB, perform Reset A and Reset

B functions, respectively, providing control signals for utilization with the handshake logic 211. In this illustrated system, the bidirectional communications is based upon an asynchronous handshake mechanism, and is not simply limited to a strobe. In operation, one processing system Sets a respective handshake signal to the other processing system to notify the other system that the communications port is loaded with data for the other system to receive. The other system sends back an appropriate Reset handshake signal which also acts as an output enable as described above to pass data from the communications port 210 to the other system. The Reset handshake signal causes the intially Set handshake signal to be Reset which acknowledges to the sending processing system that the receiving processing system has acknowledged and received the transmitted data. In the system of Fig. 6, there is a separate handshake signal associated with each of the game processing systems. There is also a separate Reset signal associated with each of the game processing systems. The surface projectile game processing system outputs a handshake signal HA to the handshake logic 211 and therefrom to the video game processing system to indicate that data has been loaded to the communications port 210 for transmittal to the video game processing system 230. Video game processing system 230 acknowledges the receipt of the HA signal by outputting a Reset A/OEA signal which enables the data stored in the communications port 210 to be communicated to the video game processing system 230, and which also resets the handshake signal HA, thereby acknowledging receipt of the transmitted data. Communication between the game processing systems 200 and 230 can thereafter proceed in either direction in a manner corresponding to the protocol just described. In a similar manner, when the video game processing system 230 has information to communicate to the surface projectile game processing system 200, the video game processing system 230 sets the handshake signal HB which thereby notifies the surface projectile game processing system 200 that data is in the communications port 210 for transmittal to the surface projectile game processing system 200. The surface projectile game processing system 200 responds by outputting a Reset B/OEB signal, thereby enabling the communications port 210 to communicate the data received from the video game processing 230 to the surface projectile game processing 200. The Reset BOEB signal also resets the handshake signal HB, thereby freeing the interface system to accept and handle communications in either direction from one system to the other. The information communicated between the surface projectile game processing system 200 and the video game processing system 230 can be of the format and protocol as described above with reference to Fig. 5 and Tables 1 and 2, or alternatively may be of a structure such that command (op code) and data

(operand(s)) are communicated between the systems 200 and 230. Thus, the command portion of the communicated information will specify status or an operation (e.g., activate solenoid) while the data portion of the communicated information can convey identifying information (e.g., which device or devices of the type specified in the command is care to be operated upon per the command). Thus, more efficient communication between the systems 200 and 230 is achieved by allowing multiple operations to be specified in a single command-data sequence. Furthermore, the system of Fig. 6 is inherently faster than the system of Fig. 5. In that operation of the interface system is asynchronous, imposing no inherent message latency time constraints.

Other interface system structures and protocols can be utilized consistent with the teachings of the present invention.

While there have been described above various embodiments of systems and methods for creating a combination video game and surface projectile game system, for the purpose of illustrating the manner in which the invention may be used to advantage, it will be appreciated that the invention is not limited thereto. Accordingly, any modification, variation, or equivalent arrangement within the scope of the accompanying claims should be considered to be within the scope of the invention.

CLAIMS

1. A combination surface projectile and video game system comprising:
100 a surface projectile
a downwardly sloping playfield,
a partially reflective-partially transmissive cover spaced above the playfield,
a selectively illuminatable video display spaced
105 above the cover aligned to reflect the illuminated display off the surface of the cover,
first means for selectively operating the system as a surface projectile game responsive to a first set of operational conditions,
110 second means for operating the system as a video game responsive to a second set of operational conditions, further comprising means for selectively illuminating said video display so as to reflect off said cover.
- 115 2. The system as in Claim 1 further comprising:
means for capturing the surface projectile responsive to the operation of the system as a surface projectile game.
- 120 3. The system as in Claim 1 further characterized in that said video display reflection visually blocks the surface projectile and playfield when the system is in the video game mode.
- 125 4. The system as in Claim 1 further comprising means for selectively operating said system as both video and surface projectile games concurrently responsive to a third set of operational conditions.
5. The system as in Claim 1 or 2 or 3 or 4 further comprising:

user control means for providing user control signals responsive to user activation of the user control means,

means for interacting with the system to affect game play in both the surface projectile game and the video game responsive to the user control means.

6. The system as in Claim 5 wherein said user control means further comprises:

10 positional transducer means for providing a position signal responsive to user activation, and switch means for providing a closure signal responsive to user activation.

7. The system as in Claim 5 wherein said user control means provides a common set of signals utilizable in both the surface projectile game mode and the video game mode.

8. The system as in Claim 5 further comprising:

striker means for selectively propelling the surface projectile along the playfield responsive to the user control means.

9. The system as in Claim 8 wherein said striker means is responsive to the user control means only in the surface projectile game mode.

25 10. The system as in Claim 1 further comprising:

means for communicating between said first means and said second means.

11. The system as in Claim 1 wherein said cover is further characterized as having nonglare reflective characteristics.

12. A combination video and surface projectile game system, having a user activated input comprising:

35 a first system for selectively operating the game system as a video game responsive to a first set of stimuli,

a second system for selectively operating the game system as a surface projectile game responsive to a second set of stimuli,

control means for providing said first and second sets of stimuli responsive to the user activated input,

means for communicating between said first and second systems and said control means.

45 13. The system as in Claim 12 further comprising:

a surface projectile,

a downwardly inclined playfield, and

50 means for propelling the surface projectile along the playfield.

14. The system as in Claim 12 further comprising:

means for displaying imagery of the video game.

55 15. The system as in Claim 13 further comprising:

means for displaying imagery of the video game.

60 16. The system as in Claim 15 further comprising:

a partially light reflective partially light transmissive cover spaced above and overlying said playfield for selectively displaying the visual imagery of at least one of the surface projectile

game and the video game by means of the cover.

17. The system as in Claim 16 wherein said cover is further characterized as having nonglare reflective characteristics.

70 18. A game system comprising:

a user input device,

a memory for selectively outputting information,

75 logic means for sequencing through at least one predefined logical sequence responsive to said memory output and said user input device,

a video display,

a downwardly sloped playfield,

a surface projectile,

80 a cover overlying said playfield, said cover having light reflective and light transmissive characteristics,

control means for selecting between a video game mode and a surface projectile game mode responsive to said logic means,

85 further characterized in that said playfield and surface projectile are clearly visible through the cover only in the surface projectile game mode, and in that said video display is visible from the top of the cover in the video game mode.

19. The system as in Claim 18 wherein said video display provides video game imagery only in the video game mode.

90 20. The system as in Claim 18 or 19 wherein said video display provides communication of user information imagery.

21. An electronic game system comprising:

an input device responsive to user activation,

a downwardly sloping playfield,

a surface projectile,

a video display,

95 a video game processing system,

a surface projectile game processing system,

means for providing video game imagery on said video display responsive to said video game processing system and said input device,

means for selectively enabling said surface projectile to move about the playfield

100 responsive to said surface projectile game processing system and said input device, and

means for automatically selecting between activation of said video game and surface projectile game processing systems.

110 22. The system as in Claim 21 further comprising:

means for providing a common surface by which the video game and surface projectile game can be visually perceived.

115 23. The system as in Claim 22 wherein said surface is further characterized as overlying said playfield in spaced relation thereto.

120 24. The system as in Claim 22 further characterized in that said surface has nonglare characteristics.

125 25. The system as in Claim 21 further comprising:

means for activating both of said video game and surface projectile game processing systems so as to operate said electronic game system in a concurrent video-surface projectile game mode.

26. A method of creating a combination surface projectile game and video game, said combination game having a surface projectile, a downwardly sloping playfield, a partially transmissive-partially reflective cover spaced above and adjacent said playfield, and a video display oriented to reflect off said cover, the method comprising the steps of:

- selectively operating the system as a surface projectile game responsive to a first set of operational conditions,
- operating the system as a video game responsive to a second set of operational conditions, further comprising the step of selectively illuminating said video display so as to 15 reflect off said cover so as to obscure said playfield from vision.
- 27. The method as in Claim 26 further comprising the step of:
- capturing the surface projectile responsive to 20 the operation of the system as a surface projectile game prior to operation of the system as a video game.
- 28. The method as in Claim 26 further comprising the step of:
- selectively operating said system as both video and surface projectile games concurrently responsive to a third set of operational conditions, such that the video display reflection only partially obscures the playfield and surface projectile.
- 30 29. The method as in Claim 26 or 27 or 28, wherein said combination game has a user control means, said method further comprising the steps of:
- providing a user control signal responsive to 35 user activation of the user control means, interacting with the system to affect game play in both the surface projectile game and the video game responsive to the user control means.
- 30. The method as in Claim 29 wherein said 40 step of providing said user control signal further comprises the steps of:
- providing a position signal responsive to said user control means, and
- providing a closure signal responsive to said 45 user control means.
- 31. The method as in Claim 29 wherein said step of providing a user control signal further comprises the step of providing a common set of signals utilizable in both the surface projectile 50 game mode and the video game mode.
- 32. The method as in Claim 29 further comprising the step of:
- selectively propelling the surface projectile along the playfield responsive to the user control 55 means.
- 33. The method as in Claim 32 wherein said step of selectively propelling further comprises the step of selectively propelling the surface projectile responsive to the user control means only in the 60 surface projectile game mode.

34. The method as in Claim 26 further comprising the steps of:

- communicating information between said video game and said surface projectile game.

65 35. In a system having a user activated input and a control logic sequencer, a method of controlling a combination video and surface projectile game comprising the steps of:

- selectively operating the game system as a 70 video game system responsive to a first set of stimuli,
- selectively operating the gaming system as a surface projectile game system responsive to a second set of stimuli,
- 75 providing said first and second sets of stimuli responsive to the user activated input and the control logic sequencer,
- communicating information between said video game system and surface projectile game system 80 and said control logic sequencer.
- 36. The method as in Claim 35 wherein said system further comprises:
- a surface projectile,
- a downwardly inclined playfield, and the 85 method further comprises the steps of:
- propelling the surface projectile along the playfield responsive to operation as a surface projectile game.
- 37. The method as in Claim 35 wherein the 90 system further comprises a video display, said method further comprising the step of displaying imagery of the video game on the display responsive to operation as a video game.
- 38. The method as in Claim 35 wherein the 95 system further comprises a partially light reflective partially light transmissive cover spaced above and overlying said playfield, said method further comprising the step of:
- selectively displaying the visual imagery of at 100 least one of the surface projectile game and the video game by means of the cover.
- 39. A combination surface projectile and video game system substantially as herein described with reference to the accompanying drawings.

105 40. A combination video and surface projectile game system having a user activated input substantially as herein described with reference to the accompanying drawings.

110 41. A game system substantially as herein described with reference to the accompanying drawings.

42. An electronic game system substantially as herein described with reference to the accompanying drawings.

115 43. A method of creating a combination surface projectile game and video game substantially as herein described with reference to the accompanying drawings.